Andrei Baraian

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📍 Cluj-Napoca, Romania

Experience

Machine Learning Engineer   BrightR   06/2023 - Present
- Developed deep learning models for teeth detection and segmentation. Consultant role, part-time.

Sabbatical   Gap year   06/2023 - 03/2024
- Travelled most of South America on my motorcycle, while taking a break from professional life.

Research Scientist   VTT Technical Research Center of Finland   06/2021 - 06/2023
- Developed machine vision and deep learning-based solutions for a wide range of optical measurements in mining, defense, plastics, agricultural and medical domains. Research interests: minimization of manual annotation for instance segmentation models, unsupervised learning for defect detection, image enhancement in medical images, robotics.
- Managed and delivered couple of internal projects, leading multi-disciplinary teams (software, optics, electronics).
- Relevant research projects: APASSI, EXCEED (mining), AHMED, FOSDIGUM (medical)
- Exchange researcher at Karl Storz in Tuttlingen, Germany (3 months).

Teaching assistant   Technical University of Cluj-Napoca   02/2021 - 06/2021
- Teaching the Image Processing lab at TUCN for 3rd year students, where they learned basic concepts like image manipulation, noise modelling, convolution, etc. and implemented them using OpenCV and C++.

Research Intern   VTT Technical Research Center of Finland   09/2019 - 06/2021
- Developed my Master's Thesis related to estimation of particle size distribution in mineral slurry.

Software engineer Intern   Montran   07/2017 - 08/2017
- Developed an enterprise web application using Spring Framework and Hibernate for a financial system, similar to one of their products, GPS (Global Payment System).

Education

University of Oulu   Oulu, Finland
- M.Sc. in Computer Engineering, AI specialization
- Thesis: Particle size distribution based on deep learning instance segmentation, supervisor: Prof. Heikkilä, Janne. Available at http://jultika.oulu.fi/Record/nbnfioulu-202103211425.
- Erasmus semester at Technical University of Munich, specializing in 3D Reconstruction and Visual Odometry.   2019 - 2021

Technical University of Cluj-Napoca   Cluj-Napoca, Romania
- B.Sc. in Computer Engineering
- Diploma thesis: Improved 3D Perception based on color monocular camera for MAV exploiting the semantic segmentation of images, supervisor: Prof. Nedevschi, Sergiu
- Erasmus student at University of Limerick.   2015 - 2019

Publications

Conferences

P1 **Improved 3D Perception based on color monocular camera for MAV exploiting semantic segmentation of images**

<u>Andrei Baraian</u>, Sergiu Nedevschi

Proc. of 2019 IEEE International Conference on Intelligent Computer Communication and Processing (ICCP 2019), Cluj Napoca, Romania, September 5-7, 2019

P2 **Computing Particle Size Distribution of Mineral Rocks using Deep Learning-based Instance Segmentation**
Baraian, A., Kellokumpu, V., Paaso, J., Koresaar, L., & Kaartinen, J.
2022 10th European Workshop on Visual Information Processing, EUVIP 2022: Proceedings IEEE Institute of Electrical and Electronic Engineers.

P3 **Automatic Fracture Detection and Characterization in Borehole Images Using Deep Learning-Based Semantic Segmentation**
Baraian, A., Kellokumpu, V., Räty, T.D., & Kallio, L.
Proceedings of the 18th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications (VISIGRAPP 2023)

Reports

P4 **Agile and Holistic Medical Software Development: Final report of AHMED project**
Lähteenmäki, J. (Ed.), Ahola, P., Baraian, A., Förger, K., Granlund, T., Hopia, J., Kaikkonen, R., Mikkonen, T., Niemirepo, T., Pajula, J., Partanen, J., Pellinen, T., Stirbu, V., & Torhola, M.
VTT Technical Research Centre of Finland. VTT Research Report No. VTT-R-01079-22 (Research report)

Skills

Programming Languages: 🐍 Python, C++
Tools and Frameworks: Git, PyTorch, Tensorflow, Keras, Tensorflow, OpenCV Linux, LaTeX, Optics and optomechanics
Languages: Romanian (native), English (proficient), Spanish (beginner)